

APPLICATION NO.

10/672,045

CONLEY ROSE, P.C.

HOUSTON, TX 77253-3267

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ATTORNEY DOCKET NO.	CONFIRMATION NO
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LE, TOAN M

ART UNIT PAPER NUMBER

2863

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

FIRST NAMED INVENTOR

Frederick David Gray

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		Application No.	Applicant(s)	••	
		10/672,045	GRAY ET AL.		
	Office Action Summary	Examiner	Art Unit		
		Toan M Le	2863		
Period f	The MAILING DATE of this communication or Reply	appears on the cover sh	eet with the correspondence add	ress	
A SH THE - Exte afte - If th - If No - Fail Any	MORTENED STATUTORY PERIOD FOR REMAILING DATE OF THIS COMMUNICATIO ensions of time may be available under the provisions of 37 CFR SIX (6) MONTHS from the mailing date of this communication. e period for reply specified above is less than thirty (30) days, a D period for reply is specified above, the maximum statutory per ure to reply within the set or extended period for reply will, by stareply received by the Office later than three months after the med patent term adjustment. See 37 CFR 1.704(b).	N. 1.136(a). In no event, however, reply within the statutory minimuliod will apply and will expire SIX state, cause the application to be	may a reply be timely filed  n of thirty (30) days will be considered timely. (6) MONTHS from the mailing date of this concome ABANDONED (35 U.S.C. § 133).	nmunication.	
Status					
1)⊠	Responsive to communication(s) filed on 20	6 September 2003.			
2a)[]	This action is <b>FINAL</b> . 2b)⊠ T	his action is non-final.			
3) Since this application is in condition for allowance except for formal matters, prosecution as to the				nerits is	
	closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.				
Disposit	ion of Claims	,			
4)⊠	Claim(s) 1-19 is/are pending in the applicat	ion.			
4a) Of the above claim(s) is/are withdrawn from consideration.					
5)⊠	☑ Claim(s) <u>1-11</u> is/are allowed.				
6)⊠	Claim(s) <u>12,13 and 16-19</u> is/are rejected.				
7)🖂	☑ Claim(s) <u>14 and 15</u> is/are objected to.				
8)□	Claim(s) are subject to restriction an	d/or election requireme	nt.		
Applicat	ion Papers				
9)[	The specification is objected to by the Exam	iner.			
10)🖂	☑ The drawing(s) filed on <u>26 Se<i>ptember 2003</i></u> is/are: a) ☐ accepted or b) ☑ objected to by the Examiner.				
	Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).				
	Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).				
11)	The oath or declaration is objected to by the	Examiner. Note the att	ached Office Action or form PTC	)-152.	
Priority	under 35 U.S.C. § 119				
a)	Acknowledgment is made of a claim for fore  All b) Some * c) None of:  1. Certified copies of the priority docume 2. Certified copies of the priority docume 3. Copies of the certified copies of the priority document of th	ents have been receive ents have been receive priority documents have reau (PCT Rule 17.2(a))	d. d in Application No been received in this National S	tage	
Attachmer	nt(s)				
1) 🛭 Notic	ce of References Cited (PTO-892)		rview Summary (PTO-413)		
3) 🛛 Infor	ce of Draftsperson's Patent Drawing Review (PTO-948) mation Disclosure Statement(s) (PTO-1449 or PTO/SB/ er No(s)/Mail Date <u>6/14/04; 10/28/04</u> .	r	er No(s)/Mail Date ice of Informal Patent Application (PTO- er:	152)	

## **DETAILED ACTION**

## Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-19 are rejected under 35 U.S.C. 102(b) as being anticipated by "Fractured Reservoir Characterization and performance Forecasting Using Geomechanics and Artificial Intelligence", Ouenes et al.).

Referring to claim 12, Ouenes et al. disclose a method incorporated into a system for reservoir fracture characterization, the system comprising: an information storage device having seismic traces; and a processor configured to retrieve and process the seismic traces to determine an array of reflection anisotropy values, wherein the processor is further configured to determine a relationship between reflection anisotropy and a measure of fracture intensity at one or more well positions (page 426, 2<sup>nd</sup> col., 3<sup>rd</sup> paragraph; page 427, 1<sup>st</sup> col., 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> paragraphs).

As to claim 13, Ouenes et al. disclose a method incorporated into a system for reservoir fracture characterization, wherein the measure of fracture intensity relates to fluid production from wells at the one or more well positions (page 426, 2<sup>nd</sup> col., 3<sup>rd</sup> paragraph).

Referring to claim 16, Ouenes et al. disclose a method incorporated into a system for reservoir fracture characterization, wherein the processor is configured to determine the relationship by training one or more neural networks 9page 428, 2<sup>nd</sup> col., 2<sup>nd</sup> and 3<sup>rd</sup> paragraphs).

Art Unit: 2863

As t claim 17, Ouenes et al. disclose a method incorporated into a system for reservoir fracture characterization, further comprising: a graphical display coupled to the processor and configured to present a view of fracture intensity measurements as a function of position, wherein the processor is configured to generate the view by applying the relationship to an array of reflection anisotropy values (figures 3-6 and 9).

Referring to claims 18-19, Ouenes et al. disclose a method incorporated into a system for reservoir fracture characterization, wherein the display presents fracture intensity measurements as a function of two spatial dimensions (figures 3-4) and three spatial dimensions (figure 9).

Claims 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### Allowable Subject Matter

Claims 1-11 are allowed.

The primary reason for allowance of the claims is the inclusion of obtaining and combining seismic traces into gathers that reveal acoustic reflectivity as a function of offset, azimuth, and position (AVAZ), measuring reflection anisotropy as a function of position, determining a relationship between reflection anisotropy and fracture intensity measurements at specific positions and applying the relationship to reflection anisotropy measurements to create/map a set of fracture intensity measurements.

Ouenes et al. in 'Fractured Reservoir Characterization and Performance Forecasting
Using Geomechanics and Artificial Intelligence' and Zellou et al. in 'Improved Fractured
Reservoir Characterization Using Neural Networks, Geomechanics and 3-D Seismic' teach

Art Unit: 2863

obtaining 3-D seismic travel time and 3-D average amplitude instead of using AVAZ to determining a relationship between reflection anisotropy and fracture intensity measurements at specific positions and applying the relationship to reflection anisotropy measurements to create/map a set of fracture intensity measurements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

"Fractured Reservoir Characterization Using P-Wave AVOA Analysis of 3D OBC Data", Hall et al., The Leading Edge, August 2002, pages 777-781

"Fractured Detection in Manderson Field: A 3-D AVAZ Case History", Gray et al., The Leading Edge, November 2000, pages 1214-1221

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2863

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Toan Le

December 16, 2004

Supervisory Patent Examiner
Technology Center 2800